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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/830,279
Filing Date	Oct 23, 2001
First Named Inventor	Geoffrey McCabe
Art Unit	2837
Examiner Name	Ex. Kimberly Lockett
Attorney Docket Number	

Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☒ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to Group **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please Identify below):

Remarks

Amendment to OA dated 8/28/06

Total of 25 Pages

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual	
Signature	
Date	9/27/06

CERTIFICATE OF TRANSMISSION/MAILING

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RESPONSE TO OFFICE ACTION DATED 08/28/2006

Commissioner for Patents and Trademarks
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From: Geoffrey McCabe
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Application:	09/830,279
Title:	TUNING APPARATUS FOR STRINGED INSTRUMENT
Filing Date:	October 23, 2001
Confirmation No.:	8248
Date:	September 27, 2006

IN THE CLAIMS

The Applicant had a telephonic interview with Examiner Lockett on September 25, 2006.

Amended drawings in compliance with CFR 1.121 (d) now indicating "alternate anchoring point (177)" in Figure 11, is marked "Replacement Sheet" and is included in this Response – "the alternate anchoring point" was "illustrated in phantom in Fig. 11". See Page 17, lines 13-14.

Claims 86-92 were rejected because the claims recite the phrase "bridge tailpiece" and Office Action states that this element was not found in the Specification.

However, the Specification shows the use of the phrase "bridge tailpiece" and specifies that one skilled in the relevant art would know this term and cites examples:

> It is known to those skilled in stringed musical instrument design and construction that various tremolos have been proposed and utilized for varying the tension of all the strings simultaneously for the purpose of creating a tremolo sound. Further, it is known to those skilled in the art that there are a great many commonly used names for such devices, such as tremolo, tremolo device, tremolo tailpiece, tremolo bridge, fulcrum tremolo, fulcrum tremolo bridge, fulcrum tremolo tailpiece, fulcrum tremolo bridge-tailpiece, vibrato, vibrato bridge, vibrato tailpiece, vibrato bridge tailpiece, etc." Page 2, lines 3-10.

Further, the Applicant illustrates the foregoing and also expounds on the specified definition that the tailpiece provides the anchoring means:

> In one specific species, known as the fulcrum tremolo, Fender U.S. Pat. No. 2,741,146, shows and provides a tremolo device which incorporates a novel bridge structure which incorporates the tailpiece which is commonly known to provide the anchoring means for the strings" – Page2, lines 11-14.

And in the DETAILED DESCRIPTION OF THE INVENTION:

> "The intonation modules present improvements to the macro-tuning invention which incorporates the function of the bridge element and the tail-piece in its structure ...." Page 10, lines 28-30.

Accordingly, the phrase, bridge tailpiece, refers to a device that belongs to a broad class of prior art since at least the 50's in the earliest Gibson Les Paul guitars, for example, is common terminology in the industry and is presented as such to which inventions such as the macro-tuner or an alternate string anchoring point are presented for allowance in the SUMMARY OF THE INVENTION:

> "It is a further object of the invention to provide intonation modules with macro-tuners, a string anchoring means, known to those skilled in the art as a tailpiece..." Page 7, lines 20-23.

Nonetheless, claims 86-92 are amended.

The Applicant pointed out to the Examiner that the phrase "a second critical point" is defined in a singular manner in the Specification, Page 1, lines 8-9; however, claims 89-92, 104-107 and 109-110 have been amended to include a recitation of the "first critical point".

That claim 93 does not recite a "second critical point" was pointed out to the Examiner in the interview; accordingly, the Examiner indicated that the claim is allowed subject to further review.

Claims 94-99 directed to global tuners were rejected; however, no reasons were given in the 8/28/06 Office Action. In the Interview the Examiner agreed to allow the claims subject to further review.

Discussing claims 104-107 and 109 the Applicant indicated to the Examiner in the interview that the phrase "a critical distance" was couched in claim language derived from the Specification:

> "Specifically, the second anchoring point is located a distance from the second critical point that is substantially equal to the length of the wrappings of the strings." – Page 9, lines 13-15.

> "In this way, the wrapping of the string does not engage the second critical point. Further, the length of the string rearward of the second critical point is substantially inextensible."– Page 17, lines 23-26.

Accordingly, it was agreed the language of claims would be allowable when amended to strike "critical" but is subject to further review.

In the Telephonic Interview the Desmond patent and the term "anchoring point" was discussed. The Examiner pointed out that "anchoring point" could refer to any point where there is bend in the string. The Applicant responded that the first anchoring point (18) and alternate anchoring point (20) were in actuality neither as per the Desmond Drawings or anywhere in the Desmond Specification in view of the definition of "alternate anchoring point" in the Applicant's Specification:

> "The strings are anchored at one end on a portion of the instrument known as the tailpiece, strung over the bridge and the nut on the head of the instrument and in conventional instruments anchored on the other end to the tuning pegs where an untensioned string is tensioned and adjusted to a tuned condition" – Page 1, lines 4-8.

Further,

> "Yet another object of the invention is to provide a fulcrum tremolo having alternate string anchoring points that are spaced apart from each other. One anchoring point is provided at the bottom of the spring block or spring blade so that the anchoring point is remote from the second critical point. The second anchoring point is located adjacent the second critical point so that the length of the string between the second critical point and the string anchor is substantially shorter when the string is anchored at the second anchoring point than at the spring block anchoring point." – Page 9, lines 6-13.

And,

> "The spring blade 240 provides the first anchoring point for the string anchor. The string anchor 160 is seated in on of the notches at the bottom of the spring blade 240.... The rearward surface 177 of the intonation module 170 provides the alternate anchoring point" – Page 17, lines 2-11.

Accordingly, the Applicant's invention is neither anticipated nor obvious in view of any prior art.

Claims 104-107 and 109 are amended.

Marked Up Version Of The Pending Claims under 37 C.F.R. 1.121(c)(l)(ii):
Claims 86 –93, 104, 106-107, and 126 have been amended as follows and in accordance with 37 C.ER. 1.121(c), by which the Applicant submits the following marked up version, wherein the markings are shown by brackets (for deleted matter) and/or underlining (for added matter):

I claim:

86. (Amended) A tuning apparatus for a stringed musical instrument comprising:

a body and

a neck extending outwardly from said body,

a plurality of strings extending from the body to the neck,

a first critical point for each of said strings on the neck,

a second critical point for each of the strings on the body comprising a bridge element,

an anchoring point for one end of the strings on the neck,

the bridge element further comprising:

an anchoring point for another end of the strings, and

[having an element to receive at least one musical instrument string, the element comprising:]

an alternate string anchoring point for each string.

87. (Amended) The apparatus [bridge tailpiece] of claim 86, wherein the apparatus [bridge tailpiece] further comprises:

a tremolo.

88. (Amended) The apparatus [bridge tailpiece] of claim 86, wherein the apparatus [bridge tailpiece] further comprises:

a fulcrum tremolo.

89. (Amended) A [bridge tailpiece with] tuning apparatus for a stringed musical instrument comprising:

a body and

a neck extending outwardly from said body,

a plurality of strings extending from the body to the neck,

a first critical point for each of said strings on the neck,

a second critical point for each of the strings on the body

the apparatus further comprising:

a base comprising a forward end and a rearward end and upper portion and a lower portion, comprising:

[an upper portion comprising:

a base;]

a [the] bridge element connected to the base, the bridge element located closer to the forward end forming a second critical point; and

a first portion connected to the base and located in the rearward end forming an alternate string anchoring point closer to the lower portion than the second critical point, and

wherein the lower portion being attached to the upper portion and the lower portion comprises:

a second portion that is transverse to the alternate string anchoring point:

and a first string anchoring point.

90. (Amended) The apparatus [bridge tailpiece] of claim 89, wherein the apparatus [bridge tailpiece] further comprises:

a fulcrum tremolo.

91. (Amended) The apparatus [bridge tailpiece] of claim 89, wherein the upper portion further comprises:

a string opening located between the first anchoring point and the second critical point, and

wherein the second portion further comprises:

a member with a string passageway connected to the second anchoring point having an axis, the axis being aligned to the string opening in the upper portion.

92. (Amended) The apparatus [bridge tailpiece] of claim 91, wherein the apparatus [bridge tailpiece] further comprises:
a fulcrum tremolo.

93. (amended) A stringed musical instrument comprising:
a body having a surface;
a bridge element attached to the body; [and] comprising
a tailpiece element attached to the surface of the body, the tailpiece comprising:

a first portion having a rearward surface having a string anchoring point formed therein, and located above the surface of the body; and

a second portion that is transverse to the first portion, and extends through at least a portion of the body, the second portion comprising:

a first end that connects the second portion to the first portion;

a second end, the second end having an alternate string anchoring point and formed therein below the surface of the body; and

an elongated passageway that extends through the second portion from the first end to the second end, along a longitudinal axis of the second portion, forming at least one opening on each end.

94. (previously amended) An apparatus comprising:
a body;
a fulcrum tremolo;
a biasing element comprising a first end connected to the fulcrum tremolo and a second end connected to the body; and

at least one biasing element holder; and

a singular apparatus connected to the fulcrum tremolo, the singular apparatus

comprising:

a thumbwheel portion operable to position the at least one biasing element holder,

wherein rotation of the thumbwheel portion adjusts the equilibrium point between the tension of the strings and the tension of the biasing element to adjust initial position.

95. (previously amended) The apparatus of claim 94, wherein the singular apparatus further comprises:

a U-shaped spring.

96. (previously amended) An apparatus for a stringed musical instrument comprising: a body; and

a fulcrum tremolo comprising:

at least one spring comprising a first end and a second end, the first end and the second end positioned opposite from each other on the at least one spring, the at least one spring positioned between the fulcrum tremolo and the body:

a spring holder connected to the biasing element:

a singular apparatus connected to the at least one spring comprising a thumbwheel and

a threaded elongated portion, the threaded elongated portion threadedly connected to the singular apparatus and the threaded elongated portion threadedly connected to the singular apparatus.

wherein rotation of the thumbwheel adjusts the equilibrium point between the tension of the strings and the tension of the at least one spring and thereby adjusting the initial position of a fulcrum tremolo.

97. (previously amended) The apparatus of claim 96, wherein the singular apparatus further comprises:

a secondary spring holder being threadedly engaged with the threaded elongated portion, and

wherein the fulcrum tremolo being positioned between the thumbwheel and the secondary spring holder.

98. (original) The apparatus of claim 96, wherein the spring holder being positioned between the thumbwheel and the biasing element.

99. (original) The apparatus of claim 98, further comprising a secondary spring holder
connected to the biasing element,
wherein the thumbwheel further comprises a second elongated threaded portion, wherein the fulcrum tremolo further comprises a threaded opening, and wherein the thumbwheel is positioned between the secondary spring holder and
the threaded opening.

104. (Amended) A fulcrum tremolo comprising an intonation module with a forward portion and a rearward portion:

the intonation module comprising:

a base;

a bridge element connected to the base, the bridge element located closer to the forward end forming a second critical point; and

wherein the rearward portion forms a string anchoring point closer to the base than the second critical point; and

wherein the string anchoring point is located a [critical] distance from the second critical point operable to render a string as approximately inextensible between the anchoring point and the second critical point.

105. (previously amended) The fulcrum tremolo of claim 104, wherein the intonation module further comprises:

a macro tuner.

106. (amended) The fulcrum tremolo of claim 104, wherein the [critical] distance is at least 0.25 inch.

107. (amended) The fulcrum tremolo of claim 104, wherein the [critical] distance is about equal to the length of conventional musical instrument string wrapping.

108. Cancelled

109. (previously amended) The fulcrum tremolo of claim 104, further comprising:

a base plate attached to the intonation module, the base plate comprising a string hole.

110. (previously amended) A fulcrum tremolo with a forward end and a rearward end, the fulcrum tremolo comprising:

a base plate comprising a string hole,

a spring holder that is transverse to the base plate comprising:

a first string anchoring point; and

a string passageway having an axis wherein a longitudinal axis of the string passageway aligns with the string hole;

an intonation module attached to the spring holder comprising:

a base;

a bridge element connected to the base, the bridge element located closer to the forward end than the rearward end and forming a second critical point; and

wherein the rearward portion forms an alternate string anchoring point

closer to the base than the second critical point; and

wherein the alternate string anchoring point is located a [critical] distance from the second critical point so that a string is rendered essentially inextensible between the alternate string anchoring point and the second critical point.

111. (original) The fulcrum tremolo of claim 110, wherein the intonation module further comprises:

a macro tuner.

112. (previously amended) A tremolo for a stringed musical instrument comprising: at least one bridge element; and

a unitary component that is a single piece of bent material comprising:

a base plate being approximately planar, comprising:

a forward edge, a portion of the forward edge being a pivot and forming a pivot axis, and

an end opposite of the forward edge;

the opposite end of the forward edge of the base plate comprising:

a bend in the unitary component;

a transverse portion comprising:

at least one spring socket to receive an end of at least one biasing element; and

wherein the bend transitions the base plate to the transverse portion, and

wherein the bend and the transverse portion are approximately parallel to the pivot axis, and

wherein the unitary component is connected to the at least one bridge element.

113. (previously amended) The tremolo of claim 112, wherein the transverse portion further comprises:

at least one string socket.

114. (previously amended) A fulcrum tremolo for a stringed musical instrument comprising:

a unitary component that is a single piece of bent material comprising:

a base plate being approximately planar, comprising:

a forward edge, a portion of the forward edge being a pivot and forming a pivot axis, and

an end opposite of the forward edge;

a first bend in the unitary component at an opposite end of the forward edge of the base plate;

and a transverse portion comprising:

at least one spring socket to receive an end of at least one biasing element,

wherein the first bend transitions the base plate to the transverse portion,

and

wherein the first bend and the transverse portion are approximately parallel to the pivot axis,

at least one bridge element connected to the unitary component.

115. (original) The fulcrum tremolo of claim 114, wherein the first bend further comprises:

a reinforcement.

116. (previously amended) The fulcrum tremolo of claim 114, wherein the transverse portion further comprises:

at least one string socket to receive an end of a string.

117. (previously amended) The fulcrum tremolo of claim 116, wherein the base plate further comprises at least one string hole, and
wherein the transverse portion further comprises:
an upper portion;
a lower portion comprising at least one string passageway, each of the at least one string passageway is aligned with at least one of the least one string hole in the base plate; and
at least one second bend that transitions from the upper portion to the lower portion,
wherein the lower portion is approximately parallel to the pivot axis.

118. (previously amended) The fulcrum tremolo of claim 116, wherein the base plate further comprises:
at least one tier for displacing the at least one bridge element from the base plate.

119. (original) The fulcrum tremolo of claim 114, wherein the transverse portion further comprises:
the at least one string socket

120. (original) The fulcrum tremolo of claim 114, wherein the pivot further comprises: a pivot having a knife edge.

121. (original) The fulcrum tremolo of claim 114, wherein the pivot further comprises: a pivot having a beveled edge.

122 (previously amended) The fulcrum tremolo of claim 114, wherein the pivot further comprises:
a least a portion of a ball bearing surface.

123. (original) The fulcrum tremolo of claim 114, wherein the pivot further comprises: at least a portion of a ball bearing surface; and

at least a portion of a shaft.

124. Cancelled

125. (previously new) A fulcrum tremolo for a stringed musical instrument comprising:

at least one bridge element; and

a unitary component that is a single piece of bent material comprising:

a base plate being approximately planar, comprising:

a pivot forming a pivot axis;

at least one bend in the base plate;

at least one additional portion formed to receive at least a portion of at least one bearing assembly,

wherein the at least one bend and the at least one additional portion have an axis approximately parallel to the pivot axis, and

wherein the unitary component is connected to the at least one bridge element.

126. (amended) A fulcrum tremolo for a stringed musical instrument comprising:

at least one bridge element; and

a base plate being approximately planar, comprising:

a forward edge, and;

at least one additional portion formed to receive at least a portion of at least one bearing assembly;

the at least one bearing assembly, comprising:

at least a portion of a shaft, at least one housing,

at least a portion of a ball bearing surface, and at least one annular flange[.]

wherein the at least one annular flange spaces the at least a portion of at least one bearing assembly away from the base plate.

127. (Previously Added) A bridge-tailpiece for a stringed musical instrument comprising:

a fulcrum tremolo, the fulcrum tremolo further comprising:

an element to receive at least one musical instrument string, the element comprising:

a first string anchoring point for each string; and

an alternate string anchoring point for each string;

and

an intonation module with a forward portion and a rearward portion:

the intonation module comprising:

a base;

a bridge element connected to the base, the bridge element located closer to the forward end forming a second critical point; and

wherein the rearward portion forms a string anchoring point closer to the base than the second critical point; and

wherein the string anchoring point is located a critical distance from the second critical point operable to render a string as approximately inextensible between the anchoring point and the second critical point;

and

a biasing element comprising a first end connected to the fulcrum tremolo and a second end connected to the body; and

at least one biasing element holder; and

a singular apparatus connected to the fulcrum tremolo, the singular apparatus comprising:

a thumbwheel portion operable to position the at least one biasing element holder,

wherein rotation of the thumbwheel portion adjusts the equilibrium point between the tension of the strings and the tension of the biasing element to adjust initial position;

and

an unitary component that is a single piece of bent material comprising:

a base plate being approximately planar, comprising:

a forward edge, a portion of the forward edge being a pivot and forming a pivot axis, and

an end opposite of the forward edge;

the opposite end of the forward edge of the base plate comprising:

a first bend in the unitary component;

and a transverse portion comprising:

at least one spring socket to receive an end of at least one biasing element,

wherein the first bend transitions the base plate to the transverse portion, and

wherein the first bend and the transverse portion are approximately parallel to the pivot axis:

the unitary component further comprising:

at least one additional portion formed to receive at least a portion of at least one bearing assembly,

wherein the at least one bend and the at least one additional portion have an axis approximately parallel to the pivot axis, and

wherein the unitary component is connected to the at least one bridge element.

REMARKS

Claims 86-107, 109-123, 125 and 126 are pending in this application.

Claims 112 - 123 and 125-132 are allowed;

The drawings are objected to under CFR 1.83(a);

35 USC §112

Claims 86-92 are rejected under 35 USC §112 as containing subject matter not included in the specification including the term "bridge tailpiece";
Claims 89-93, 104-107 and 109 – 110 are rejected since they recite "second critical point" without a recitation of the first critical point; and
Claims 104-107 and 109 recite "critical distance".

35 USC §102

Claims 86-92 are rejected under 35 USC §102 in view of Desmond.

35 USC §103

Claims 87-88 are rejected under 35 USC §103 (a) in view of Desmond and Storey.

second critical point.

The rearward surface 177 of the intonation module 170 ~~provides~~ includes the alternate string anchoring point 247 as shown in Fig. 11, the string can be anchored to the end of the intonation module so that string anchor 160 bears against the rearward outer portion 177 of the intonation module 170. This alternate anchoring position of string anchor 160 is illustrated in phantom in Fig. 11. A hole or slot 247 is narrower than the width of the string anchor 160, but wider than the diameter of the string. The string extends though the hole or slot 247 and string anchor 160 bears against the rearward surface 177 to anchor the string.

IN THE DRAWINGS

Figure 11. is amended to include:

- number 177, the rearward portion of intonation module 170, previously presented in phantom only;
- number 246 to denote string anchoring points on the lower portion 140 of spring block or spring blade 240 for receiving anchoring ball 160;
- number 247 to indicate the alternate string anchoring point for receiving anchoring ball 160 on the rearward portion 177 of 170;
- number 248 to indicate the "elongated cylindrical passageway" in the string blade or spring block.

The drawing sheet also includes Figure 10 without amendment.

The drawing sheet now contains the header: "Replacement Sheet".

CLAIM FOR PRIORITY

The present application is a national stage application filed under 35 USC § 371. Applicant requests acknowledgment that the present application has met the requirements of 35 USC § 371, and accordingly, this application claims the benefit of the international filing date of PCT application PCT/US98/20376, filed on 10/29/1998.

REQUEST FOR NOTICE OF ALLOWANCE

Applicant requests a Notice of Allowance for claims 86-107, 109-123, 125 and 126 which are pending in this application..

CONCLUSION

All pending claims 86-107, 109-123, 125 and 126 are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the subject application. If any issues remain that prevent issuance of this application, the Examiner is urged to contact the undersigned applicant before issuing a subsequent Action.

Respectfully submitted,

Geoffrey Lee McCabe

Replacement Sheet

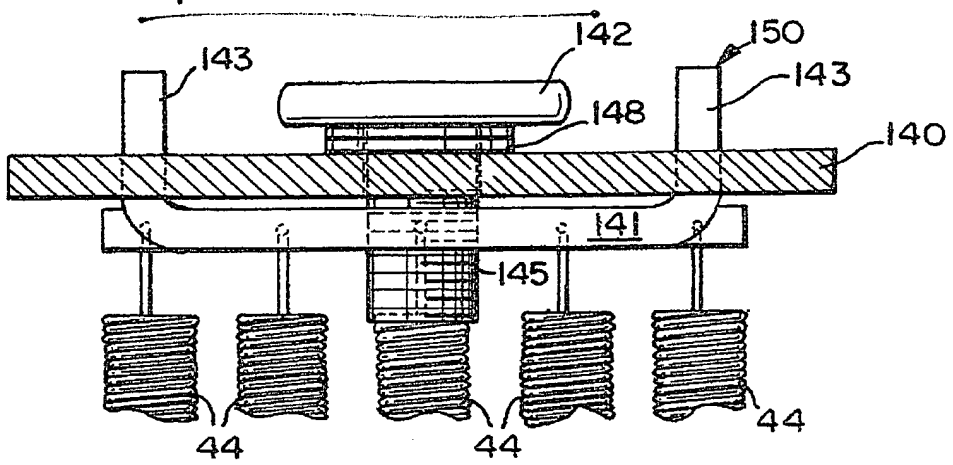

FIG. 10

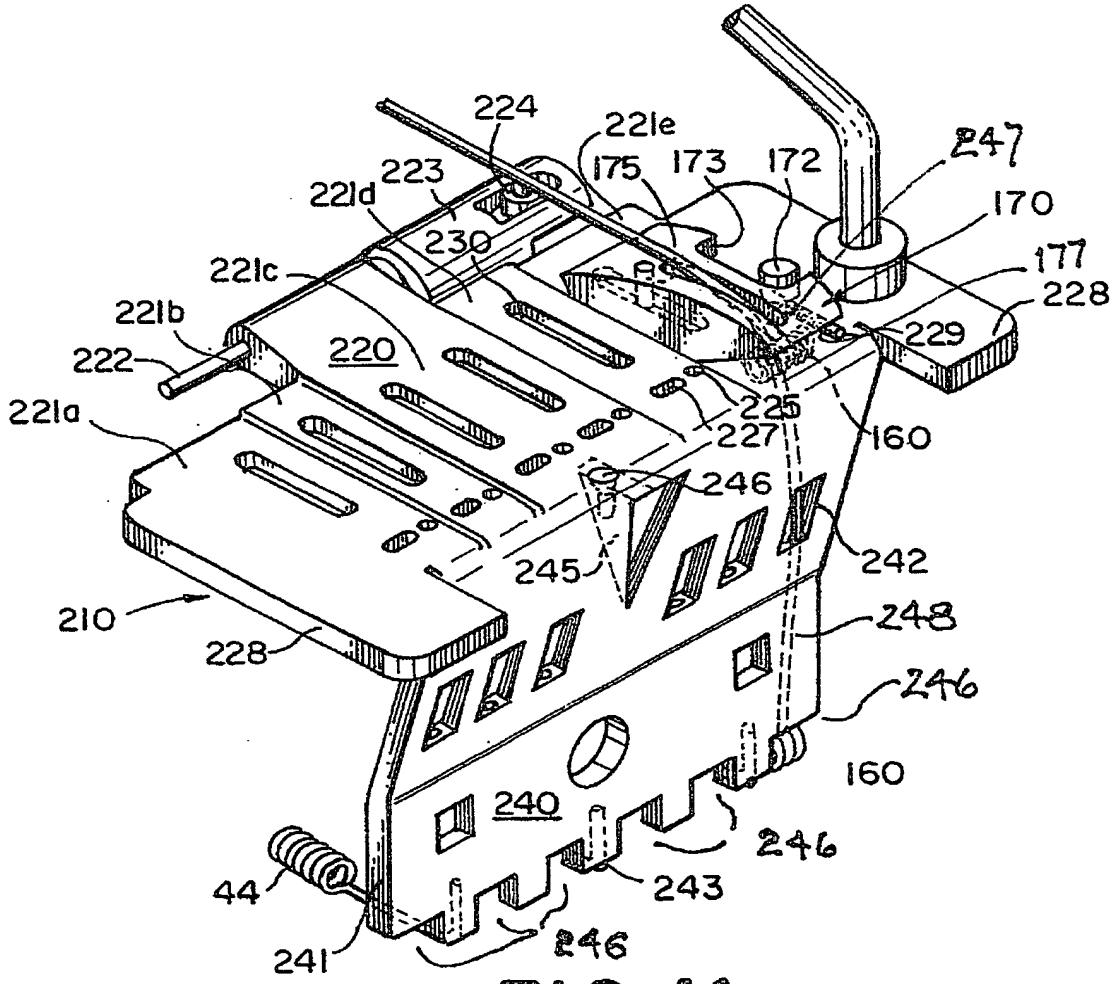

FIG. 11